

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-20, 22-27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zech *et al.* (WO 01/17483). For the purpose of examination, Zech *et al.* (US 6,894,144) was used as the English translation of Zech *et al.* (WO 01/17483).

Regarding claims 15 and 30: Zech *et al.* teaches a composition (1:10-11) comprising a mixture of N-alkylaziridino compounds (5:56-62; 6:53-64), wherein N-alkylaziridino compounds have aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4, wherein preferred embodiments contain at least 2,

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or at least 3 aziridino groups {corresponding to instant formula Z1} (6:53-64), wherein the compounds have different polymer backbones (6:65-7:4). Zech *et al.* teaches mixtures of at least up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67).

Zech *et al.* does not disclose an embodiment containing a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2}. However, at the time of invention a person of ordinary skill in the art would have found it obvious to utilized a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2} in a dental impression material based on the invention of Zech *et al.*, and would have been motivated to do so since Zech *et al.* suggests that N-alkylaziridino compounds having aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4 {corresponding to instant formula Z1} are useful as constituent (D) of the base component (5:56-61; 6:58-67).

Additionally, "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

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Zech *et al.* does not specifically disclose about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group {corresponding to instant formula Z2} [instant claim 30]. One having skill in the art would have found it obvious to have prepared a mixture containing about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group, as Zech *et al.* discloses such a range of compounds having only 1 aziridino groups are suitable for the inventive composition (6:53-64). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

Regarding claim 16-18: Zech *et al.* teaches N-alkylaziridino polyethers {corresponding to Z1 and Z2} [instant claim 16 and 18] comprising tetrahydrofuran units [instant claim 17] (7:1-4).

Regarding claim 19: Zech *et al.* teaches N-alkylaziridino polyethers having a mass of at least 500 {based on 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being 1 {corresponding to instant formula Z2} (6:53-57).

Regarding claim 20: Zech *et al.* teaches additives (5:44-6:2; 6:16-19; 6:36-42).

Regarding claim 22: Zech *et al.* teaches a base component comprising N-alkylaziridino compounds {corresponding to Z1 and Z2} and a catalyst component {corresponding to instant formula K} (5:44-6:2).

Regarding claim 23: Zech *et al.* teaches a dental material (1:12-15; 1:55-59, 7:45-50).

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and was prepared under similar conditions. Therefore, the claimed effects and physical properties, i.e. a Shore A hardness within 20 minutes of mixing base and catalyst at room temperature of at least 80% of the Shore A hardness reached after 24 h, would implicitly be achieved by a composition

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with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Regarding claim 24: Zech *et al.* teaches dental impression materials (1:10-15).

Regarding claim 25: Zech *et al.* teaches the number of N-alkylaziridino groups equal to 1 {corresponding to instant formula Z2} (6:53-57).

The Office realizes that all the claimed effects or physical properties are not positively stated by the reference. However, the reference teaches all of the claimed reagents and was prepared under similar conditions. Therefore, the claimed effects and physical properties, i.e. an acceleration of the setting rate, would implicitly be achieved by a composition with all the claimed ingredients. If it is the applicants' position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects with only the claimed ingredients.

Regarding claims 26-27: Zech *et al.* teaches pre-dosed pack units of base and catalyst {a kit}, and double chambered cartridges {base and catalyst separated} [instant claim 26] with static mixing tube [instant claim 27] (6:3-5; 6:53-57).

Claims 21 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zech *et al.* (WO 01/17483). For the purpose of examination, Zech *et al.* (US 6,894,144) was used as the English translation of Zech *et al.* (WO 01/17483).

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Regarding claims 2 and 311: Zech *et al.* teaches a method of preparing a composition (1:10-11) comprising mixing a mixture of N-alkylaziridino compounds (5:56-62; 6:53-64; 7:45-46), wherein N-alkylaziridino compounds have aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4, wherein preferred embodiments contain at least 2, or at least 3 aziridino groups {corresponding to instant formula Z1} (6:53-64), wherein the compounds have different polymer backbones (6:65-7:4). Zech *et al.* teaches mixtures of at least up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67).

Zech *et al.* does not disclose an embodiment containing a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2}. However, at the time of invention a person of ordinary skill in the art would have found it obvious to utilized a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2} in a dental impression material based on the invention of Zech *et al.*, and would have been motivated to do so since Zech *et al.* suggests that N-alkylaziridino compounds having aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4 {corresponding to instant formula Z1} are useful as constituent (D) of the base component (5:56-61; 6:58-67).

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Additionally, “It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art.” *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

*Zech et al.* does not specifically disclose about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group {corresponding to instant formula Z2} [instant claim 31]. One having skill in the art would have found it obvious to have prepared a mixture containing about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group, as *Zech et al.* discloses such a range of compounds having only 1 aziridino groups are suitable for the inventive composition (6:53-64). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

Claims 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Zech et al.* (WO 01/17483). For the purpose of examination, *Zech et al.* (US 6,894,144) was used as the English translation of *Zech et al.* (WO 01/17483).

Regarding claims 28 and 32: *Zech et al.* teaches a composition (1:10-11) comprising a mixture of N-alkylaziridino compounds (5:56-62; 6:53-64), wherein N-alkylaziridino compounds have aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4, wherein preferred embodiments contain at least 2, or at least 3 aziridino groups {corresponding to instant formula Z1} (6:53-64), wherein the compounds have different polymer backbones (6:65-7:4). *Zech et al.* teaches mixtures of at least

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up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67).

Zech *et al.* does not disclose an embodiment containing a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2}. However, at the time of invention a person of ordinary skill in the art would have found it obvious to utilized a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2} in a dental impression material based on the invention of Zech *et al.*, and would have been motivated to do so since Zech *et al.* suggests that N-alkylaziridino compounds having aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4 {corresponding to instant formula Z1} are useful as constituent (D) of the base component (5:56-61; 6:58-67).

Additionally, "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

Zech *et al.* does not specifically disclose about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group {corresponding to instant formula Z2} [instant claim 32]. One having skill in the art would have found it obvious to have prepared a mixture containing about 0.4 wt%

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to about 25 wt% of polyethers having 1 aziridino group, as Zech *et al.* discloses such a range of compounds having only 1 aziridino groups are suitable for the inventive composition (6:53-64).

See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

Claims 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zech *et al.* (WO 01/17483). For the purpose of examination, Zech *et al.* (US 6,894,144) was used as the English translation of Zech *et al.* (WO 01/17483).

Regarding claims 29 and 33: Zech *et al.* teaches a method of preparing a composition (1:10-11) comprising mixing a mixture of N-alkylaziridino compounds (5:56-62; 6:53-64; 7:45-46), wherein N-alkylaziridino compounds have aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4, wherein preferred embodiments contain at least 2, or at least 3 aziridino groups {corresponding to instant formula Z1} (6:53-64), wherein the compounds have different polymer backbones (6:65-7:4). Zech *et al.* teaches mixtures of at least up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67).

Zech *et al.* does not disclose an embodiment containing a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and only 1 aziridino group {corresponding to instant formula Z2}. However, at the time of invention a person of ordinary skill in the art would have found it obvious to utilize a mixture of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and

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only 1 aziridino group {corresponding to instant formula Z2} in a dental impression material based on the invention of Zech *et al.*, and would have been motivated to do so since Zech *et al.* suggests that N-alkylaziridino compounds having aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4 {corresponding to instant formula Z1} are useful as constituent (D) of the base component (5:56-61; 6:58-67).

Additionally, "It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

Zech *et al.* does not specifically disclose about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group {corresponding to instant formula Z2} [instant claim 33]. One having skill in the art would have found it obvious to have prepared a mixture containing about 0.4 wt% to about 25 wt% of polyethers having 1 aziridino group, as Zech *et al.* discloses such a range of compounds having only 1 aziridino groups are suitable for the inventive composition (6:53-64). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05].

### ***Response to Arguments***

Applicant's arguments with respect to claims 15-33 have been considered but are moot in view of the new ground(s) of rejection.

The examiner notes the rejection of claims based on Zech *et al.* (US '144) was used in a prior Office action [see action mailed 7/6/09]. Zech *et al.* (US '144) discloses a composition

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(1:10-11) comprising a mixture of N-alkylaziridino compounds (5:56-62), wherein N-alkylaziridino compounds have aziridino equivalent masses being able to be varied from 500 to 25000 g/equivalent and the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4, wherein preferred embodiments contain at least 2, or at least 3 aziridino groups {corresponding to instant formula Z1} (6:53-64), wherein the compounds have different polymer backbones (6:65-7:4) [Zech *et al.* discloses mixtures of at least up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67); Additionally, Zech *et al.* discloses the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4].

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, Zech *et al.* disclose mixtures of at least up to 60% of polyether compounds which carry at least two aziridino groups {corresponding to instant formula Z1} and at least up to 5% of polyether compounds which contain at least 3 aziridino groups (6:53-67); Additionally, Zech *et al.* discloses the number of N-alkylaziridino groups being able to be varied between 1 {corresponding to instant formula Z2} and 4]. "It is prima facie obvious to combine

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two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art.” *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) [see MPEP 2144.06].

While the examples of the present specification show that when adding small amounts of Z2, the shore A hardness {10 minutes after} is generally higher, while the final shore A hardness {24 h after} remains substantially the same [see Tables 1-2 and 4-7], it is unclear if the acceleration of the setting reaction [without negatively affecting the desired final properties] is due to the amount of Z2, the specific Z2 composition, the amount of specific Z2 composition, or the specific compositions employed in the examples [see Tables 1-2 and 4-7]. In an attempt to show unexpected results for the acceleration of the setting reaction [without negatively affecting the desired final properties], evidence {data} would need to be provided for a showing of unexpected results over the prior art of record. To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960) [see MPEP 716.02(d)]. See also *In re Lindner*, 457 F.2d 506, 509, 173 USPQ 356, 359 (CCPA 1972).

Applicant’s claims are broader than the specific compositions employed in the examples [see Tables 1-2 and 4-7], and therefore not commensurate in scope. Whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the “objective evidence of nonobviousness must be commensurate in scope with the claims

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which the evidence is offered to support.” In other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980) [See MPEP 716.02(d)].

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL PEPITONE whose telephone number is (571)270-3299. The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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30-September-10